

Replacement Page 1, 1st Paragraph

BACKGROUND OF THE INVENTION

The invention concerns arrangements for influencing and treating the air of at least one room by adjusting the temperature as well as by ionization of the supply air.

Replacement Page 3, 1st and 2nd Paragraphs

SUMMARY OF THE INVENTION

It is an object of the invention ~~described in claim 1~~ to condition at least one room comfortably wherein a high air quality as well as a draft-free and thus comfortable air supply to the room must be ensured.

This object is solved by the following features; ~~set forth in claim 1~~

a first air quality sensor in the external air conduit of an air conditioning device,
at least one ionization apparatus, an ozone sensor, an air humidity sensor, an airflow sensor, and at least one device for temperature adjustment of the air arranged in the supply conduit between the air conditioning device and the at least one room,
at least one chamber-like or hood-like device forming a component of the room coupled to the supply conduit, wherein either the wall or the ceiling separating the chamber-like or hood-like device or a chamber-like or hood-like device and the room from one another has openings for ensuring convection of the temperature-adjusted and ionization-influenced supply air into the room,
and an exhaust air conduit ending at the exterior as well as a recirculating air conduit connected to the air-conditioning device at the exhaust conduit of the at least one room,
a second air quality sensor in the recirculating air conduit, and
at least one control device connected to the first air quality sensor, the ozone sensor, the air humidity sensor, the airflow sensor, the second air quality sensor, and the device for temperature-adjustment of the air.

Replacement Paragraphs Page 5, Line 2, to Page 7, Line 22

~~Advantageous embodiments of the invention are provided in claims 2 to 21.~~

By means of a regulator for the volume flow of the supply air in the supply conduit upstream of the chamber-like or hood-like device or one of the chamber-like or hood-like devices ~~in accordance with the further embodiment of claim 2~~, a comfortable climate in the room can be manually adjusted and automatically maintained. In particular, this concerns the temperature in the room. For this purpose, the regulator for the volume flow and/or the control device and/or an additional control device are connected to a temperature sensor arranged in the room. By means of an adjustable element that is connected to an additional control device and/or the control device and/or the regulator, the volume flow is regulated in accordance with the selected value. The element in this connection is advantageously either a potentiometer as a continuously adjustable voltage divider or a switch in connection with resistors as a voltage divider that is adjustable in steps.

In accordance with ~~the~~ another ~~embodiment of claim 3~~, several chamber-like devices are advantageously arranged in one plane wherein the chamber walls facing in the direction of the room have penetrations. In this way, constructively limited and easily mountable units are provided in which the supply air can still be distributed uniformly without great pressure differences. The penetrations can be significantly greater than the openings ensuring convection so that an economical manufacture of the chamber-like devices is provided. The openings that ensure the convection of the supply air are advantageously components of a layer that is applied to the chamber wall or a body that is arranged on the chamber walls. In this way, in particular gap-free walls can be realized. Especially by means of the second variant continuous walls can be realized wherein advantageously the layer or the body are applied or arranged after mounting of the chamber-like devices.

The cross-sections of the penetrations provided as openings of the chamber-like devices ~~in accordance with the embodiment of claim 4~~ are smaller or identical or greater than the

cross-sections of the openings of the body. In the case of smaller or greater openings, a laminar air flow results. In the case of identical or greater openings there is no dynamic pressure between the chamber-like devices and the body that is arranged at a spacing.

Beneficial layers ~~in accordance with the embodiment of claim 5~~ are a paint coating, a stucco coating, or a coating of fiber materials that can be applied advantageously also after installation of the chamber-like or hood-like devices.

An especially advantageous realization of the wall is provided ~~by the embodiment of claim 6~~ ~~wherein~~ when the body is comprised of fiber materials and is a woven material, a knit material, or a non-woven material. It can be advantageously arranged loosely on the chamber wall. In this way, it is possible to remove and exchange this body independent of the chamber-like or hood-like devices. In this way, an easy cleaning of such a body is possible. Moreover, the visual appearance of the room can be easily changed.

In accordance with ~~the another~~ another ~~embodiment of claim 7~~, the flexible web-shaped body that spans the chamber-like and/or hood-like devices advantageously leads to the simple realization of a continuous ceiling. Interruptions or divisions are not visible. The flexible web-shaped body is easily removable or exchangeable as a whole so that it can be easily cleaned. With such an exchange, the aesthetic appearance of the room provided therewith can also be easily changed. By means of a flexible web-shaped body that is arranged at a spacing relative to the chamber-like and hood-like devices it is also possible to compensate uneven surfaces of the ceiling as well as of the chamber-like and/or hood-like devices. The chamber and/or hood-like devices advantageously enable that a substantially uniform temperature adjustment or influencing of the room air, in particular in the case of large size rooms, is possible. In this connection, the temperature-adjusted and influenced supply air flows into these devices and into the room through the openings or also micro openings of the flexible web-shaped body. Advantageously, the supply air can be swirled by means of suitable devices within the chamber-like and/or hood-like devices.

Replacement Paragraphs Page 8, Line 9, to Page 9, Line 20

The flexible web-shaped body is comprised advantageously ~~according to the embodiment of claim 8~~ of fiber materials or a layer of fiber materials. In this connection, the flexible web-shaped body is a fabric, a woven material, a knit material, or a non-woven material having the micro openings. Such bodies are also known textiles.

Such bodies can be in particular also designed to have different colors so that at the same time this body is a decorative element of the room.

Advantageously, the flexible web-shaped body ~~according to the embodiment of claim 9~~ is the upper cover of the room as well as an intermediate ceiling of the room.

In order to ensure fire protection in buildings, ~~according to the embodiment of claim 10~~ the layer, the body or the flexible web-shaped body or at least the layer arranged facing in the direction of the room of the layer system that represents the flexible web-shaped body is comprised of a material that is not easily flammable or is a nonflammable material or a corresponding layer is applied onto said body or said layer.

Profiled bodies with several openings or grooves for spreading elements ~~in accordance with the embodiment of claim 11~~ form a frame and this advantageously leads to the flexible web-shaped body being detachably tensioned. By positioning the frame with the flexible web-shaped body underneath the chamber-like and/or hood-like devices, the flexible web-shaped body can be arranged substantially without any unevenness. The profiled bodies have first openings or grooves for spreading means as second spreading means connected to the ceiling that are also formed as frames having matching dimensions. In the case of openings in one wall of the profiled body they are provided with several cavities while in the case of grooves the profile bodies represent a body. In the first variant, the spreading parts of the spreading means are arranged in the respective cavity while in the second variant the spreading parts are arranged in the grooves. The lengths of the profiled bodies and

thus also of the first openings or grooves and the spreading means are advantageously identical so that a safe and fixed securing action of the frame with flexible web-shaped bodies is provided. A wall or surface of the profiled bodies that is arranged angularly to the surface of the profiled bodies provided with the first openings or grooves has also at least one opening or groove, respectively, for the end area of the flexible web-shaped body and spreading means as a first spreading means. The lengths of the profiled bodies and of the first spreading means are identical so that a safe securing action of the fabric or flexible web-shaped body is realized. The second openings or grooves face outwardly in the case of profiled bodies arranged as a frame, respectively, so that the flexible web-shaped body spans the frame itself. In this way, a surface completely formed by the flexible web-shaped body is provided.

Replacement Paragraphs Page 10, Line 10, to Page 12, Line 26

Advantageously, the profiled body ~~according to the embodiment of claim 12~~ has at least two cavities separated from one another by a partition so that a profiled body having the first opening and the second opening is realized. The length of the openings and the length of the profiled body are identical so that spreading means of the same length can be placed. In this way, a fixed securing action of the fabric or the flexible web-shaped body on the frame as well as of the frame together with the fabric or the flexible web-shaped fabric on the wall or the ceiling is realized.

In a preferred ~~One embodiment according to claim 13 ensures that the flexible web-shaped body does not completely rest against the frame. In this way, a covering of the flexible web-shaped body is possible substantially without any unevenness.~~

Expedient configurations of the spreading means ~~in accordance with the embodiment of claim 14~~ are either two arc-shaped legs or to legs positioned angularly relative to one another that are spaced apart from one another, respectively.

In one ~~The embodiment of claim 15, wherein the profiled body has at least three cavities that are separated by two partitions from one another, and this leads advantageously to end areas of corner elements being insertable into a cavity that is closed off in the circumferential direction. In this way, a frame is easily realized with the profiled bodies and the corner elements.~~

A favorable tensioning and fastening device is provided ~~by the embodiment of claim 16 wherein in that~~ the end area of the body is located in the clamping mechanism or between the clamping mechanism as well as a wall of a frame arrangement or between the clamping mechanism as well as a wall of the room. The end area of the body has a thicker portion, and the body is a plastic film that expands upon heating. The end areas of the film in the aforementioned and therefore expanded state are inserted into the clamping mechanism or

between the clamping mechanism and a wall of the frame arrangement. Upon cooling of the film, the dimensions of the film will be reduced so that the film itself will cause its tensioning. For improved securing action and placing of the film, the film has in its end area a thicker portion.

A favorable realization for determining the height of the ionization power of the ionization apparatus, wherein the ionization is realized by electrical discharge on ionization tubes or corona discharge tubes, is realized ~~by the embodiment of claim 17~~ by measuring in particular the volatile hydrocarbon load of the external air by means of the first air quality sensor, the flow velocity or the volume flow of the air to be treated by means of the air flow sensor, the relative humidity of the air to be treated by the air humidity sensor, the contents of ozone in the supply air by means of the ozone sensor, and the oxidizable air components of the exhaust air and/or recirculating air by means of the second air quality sensor.

The ionization apparatus ~~according to the embodiment of claim 18~~ is operated such that a minimum intensity of oxygen ions in accordance with natural conditions is ensured. For this purpose, the ionization apparatus is operated constantly so that the air supplied to the room is influenced at all times. For suddenly changing conditions, for example, caused by several smokers in the room or by strongly acting cleaning agents or increasing loads of the external air, the time constant is significantly shortened for an effective ionization so that the room air is influenced more quickly in a positive way or is immediately neutralized.

The ionization power of the at least one ionization apparatus ~~according to the embodiment of claim 19~~ is controlled such that it is increased for increased proportion of volatile hydrocarbons and/or increase of air velocity and/or increase of relative humidity of the air and/or increased proportion of oxidizable air components. In this way it is ensured that, in the case of diminishing properties of the air quality in the room, substantially unloaded supply air is supplied to the room or to the waiting area by means of the predetermined air change and the optimized intensity.

~~According to the embodiment of claim 20, a~~ A favorable control of the ionization apparatus

is provided by a temporally supplied periodic alternating voltage. In this connection, the ionization apparatus is supplied with an alternating pulse, alternating pulses, or alternating pulses combined to packets of an available periodic alternating voltage. Advantageously, the optimized discharge voltage is constant in this connection.

~~According to the embodiment of claim 21, the~~ The proportion of ozone is lowered such that the desired and preset limit values of a comfortable climate in the room are ensured. In a first range, the power of the ionization apparatus is lowered for this purpose. When the value of the ozone contents of the supply air increases despite lowering of air ionization, at least one external ozone source is present. In this case, automatically a mode for decomposition of ozone is switched on by the control device. When the preset limit values are reached again, the ionization apparatus is returned to normal operation. The energy level of the ozone is changed such that it decomposes. The values for signalization are selected such that sufficient reaction safety is provided.

BRIEF DESCRIPTION OF THE DRAWINGS

Replacement Paragraph Page 13, Lines 15-17

DESCRIPTION OF PREFERRED EMBODIMENTS

An arrangement for influencing and treating the air of at least one room 4 is essentially a combination of devices for temperature adjustment as well as for ionization of the supply air of at least one room 4.